

## User's Manual



**MIX 301**  
3-channel Audio Mixer

68-1048-01 Rev. A  
02 05

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

### Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de le désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

### Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

### Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

### USA, Canada, South America, and Central America:

Extron Electronics  
1001 East Ball Road  
Anaheim, CA 92805, USA

### Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

### Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

### Japan:

Extron Electronics, Japan  
Kyodo Building  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

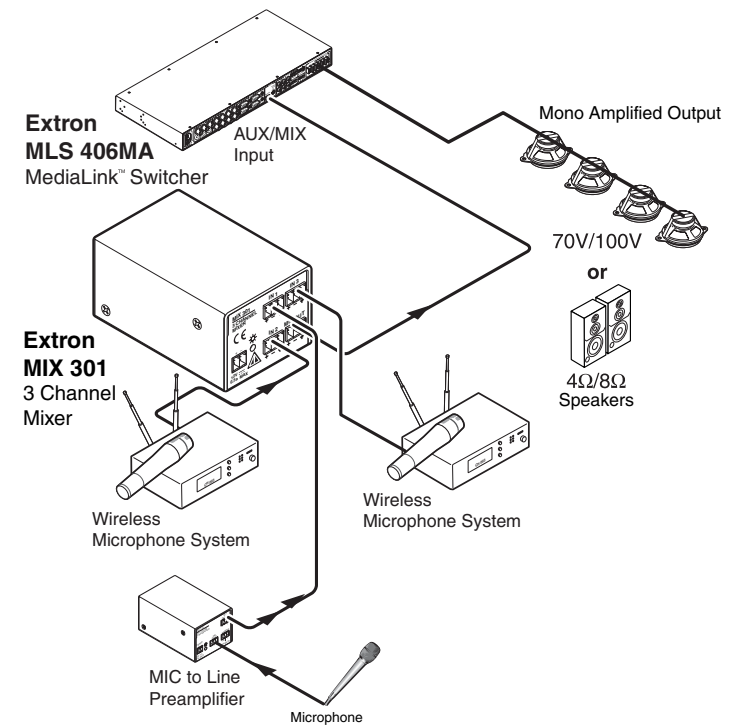
Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

# Introduction

The MIX 301 is a three-input, one-output VersaTools™ line level audio mixer. The MIX 301's features include the following:

- Recessed trim potentiometers on the front panel for individual input gain adjustments (from mute to +20 dB)
- Compact 1U, one-eighth rack, VersaTools metal enclosure
- Power indicators on both front and back panels
- Several mounting options, including rack mounting in an Extron VersaTools or standard 1U rack shelf
- Three mono, balanced or unbalanced audio inputs
- One mono, balanced audio output
- Captive screw connections for ease of installation



## Mounting the MIX 301

The MIX 301 can be set on a table, mounted on a rack shelf, mounted on the back of the rack, mounted under a desk or table, or installed on a projector mount.

### Tabletop use

The MIX 301 comes with four, self-adhesive rubber feet (not attached). Follow these instructions for a tabletop installation:

# Installation and Operation

1. Attach the rubber feet to the underside of the MIX 301 near the corners of the unit.
2. Place the MIX 301 in the desired location.

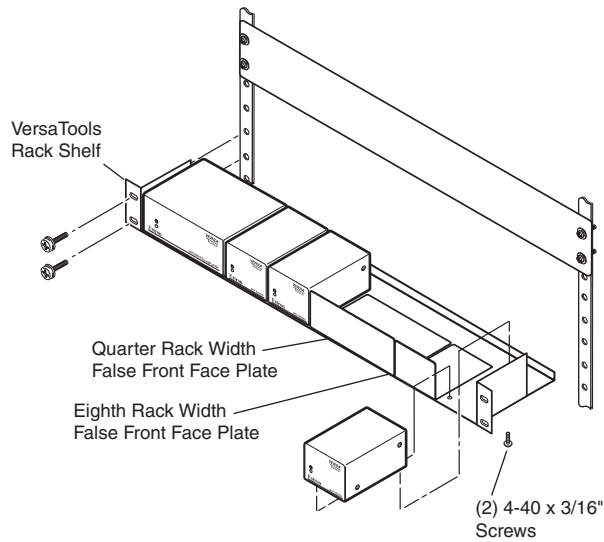
## Rack installation

The MIX 301 can be rack mounted using either the VersaTools 19" 1U rack shelf (Extron part #60-190-20), basic VersaTools rack shelf (Extron part #60-604-20), a standard universal 1U rack shelf (Extron part #60-190-01), or a 1U basic rack shelf (Extron part #60-604-01). Figure 1 shows the VersaTools rack shelf, and figure 2 shows a standard rack shelf. On the standard rack shelf, there are eight mounting locations at the front of the shelf or eight at the rear of the shelf.

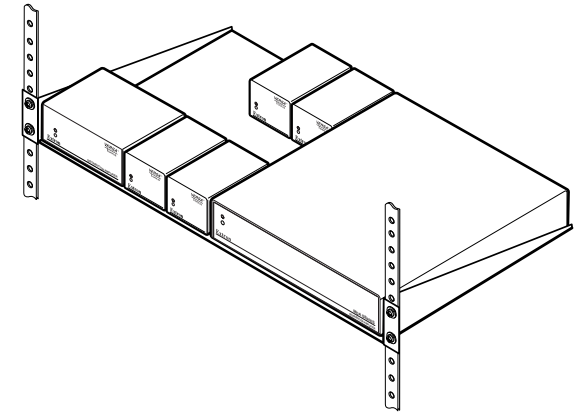
1. Remove the rubber feet from the unit, if previously installed.
2. Mount the unit on the rack shelf, using two 4-40 x 3/16" screws. These screws go into holes on the underside of the unit near the left-front and right-rear corners.

**NOTE** Only products in the VersaTools line can be mounted on a VersaTools rack shelf.

3. Install blank panels (included with Extron part #60-190-xx, optional with Extron part #60-604-xx) or other units on the rack shelf.



**Figure 1 — Mounting the MIX 301 on a VersaTools rack shelf**

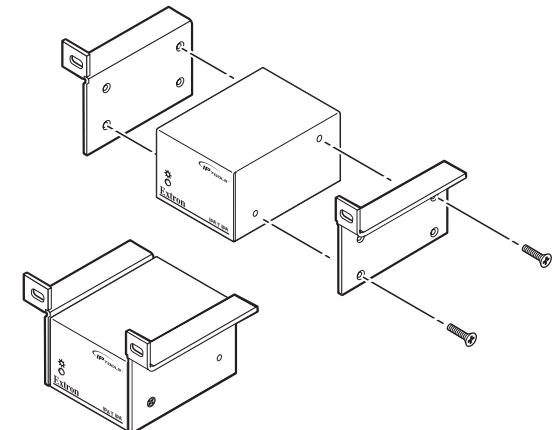


**Figure 2 — Mounting the MIX 301 on a standard 1U rack shelf**

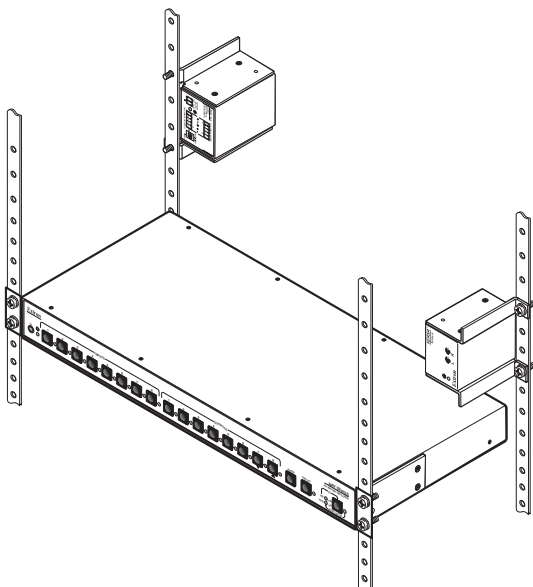
## Back of the rack installation

The MIX 301 can be conveniently mounted on the rear of a rack by using the Extron back of the rack mounting kit (Extron part #70-367-01). The back of the rack mounting kit allows the MIX 301 to be vertically positioned.

1. Attach the two back of the rack mounting brackets to the sides of the MIX using the four included mounting screws.



2. Mount the unit on the rack using the two included rack screws. The MIX 301 can be vertically mounted facing in either direction, as shown in the following diagram.

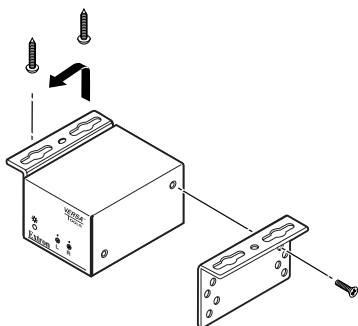


### Furniture/Projector mounting

Use the optional mounting kit (furniture, part #70-212-01, or projector, part #70-217-01) to mount the MIX 301, as follows.

#### Furniture mounting

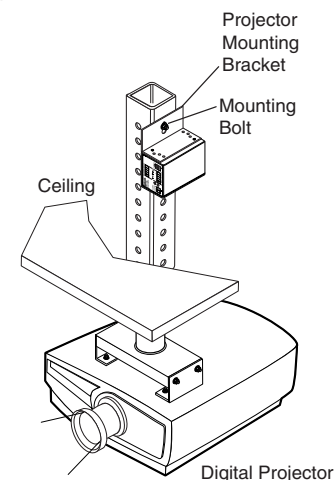
1. Remove the rubber feet if they were previously installed.
2. Attach the mounting bracket to the MIX 301, as shown here.
  - a. Remove the two machine screws from one side of the unit. Save these screws for future use.
  - b. After lining up a bracket with the holes, attach the bracket using the longer machine screws provided.
  - c. Repeat this step to attach the other bracket.



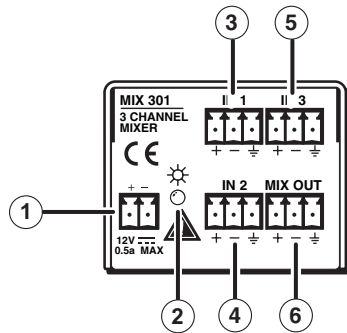
3. Attach the MIX 301 to the furniture.
  - a. Hold the unit against the underside of the table or other furniture, and mark the locations for four screws (two screws per bracket) on the mounting surface.
  - b. At each mark, drill a 3/32" (2 mm) diameter pilot hole approximately 0.25" (6 mm) deep in the mounting surface.
  - c. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 0.25" (6 mm) of the screw protrudes.
  - d. Align the bracket slots with the wood screws and place the unit against the mounting surface.
  - e. Slide the unit either forward or backward until the screws are in contact with the edge of the bracket slots. Then, tighten each screw to secure the unit in place.

#### Projector mounting

1. Remove the rubber feet if they were previously installed.
2. Attach the mounting bracket to the MIX 301 with the machine screws provided.
3. Secure the unit to a projector mount or other surface using mounting bolts as shown in the following diagram.



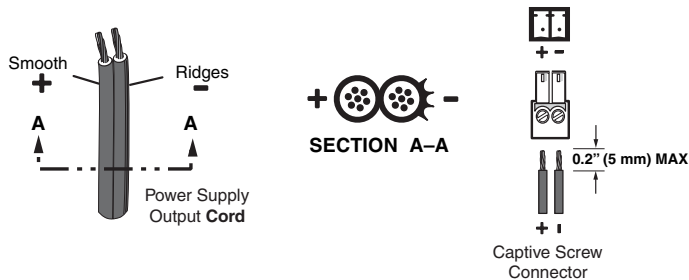
## Rear Panel Features and Cabling



**Figure 3 — MIX 301 rear panel**

- ① **Captive screw power input connector** — Connect the included 12 VDC external power supply into the 2-pole 3.5 mm captive screw connector. Be careful to observe the correct polarity.

**NOTE** Do not tin the power supply leads before installing them in the connector. Tinned wires are not as secure in the connectors and could be pulled out.



**WARNING** The two power supply leads must be kept separated while the power supply is plugged into an electrical outlet. Remove power before wiring.

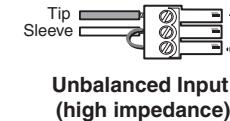
**CAUTION** Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MIX 301. Identify the power cord negative lead by the ridges on the side of the cord.

The length of the exposed (stripped) copper wires is important. **The ideal length is 0.2" (5 mm).** Longer bare wires can short together. Shorter wires are not as secure in the direct insertion connectors and could be pulled out.

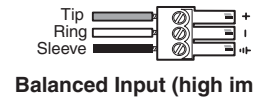
To verify the polarity before connection, check the no load power supply output with a voltmeter.

- ② **Power LED** — Lights green to indicate that the MIX 301 has power.
- ③ ④ ⑤ **Balanced/unbalanced input connectors (IN 1, IN 2, IN 3)** — The balanced/unbalanced mono audio input is wired to a 3-pole, 3.5 mm captive screw connector. Wire the connector as shown below.

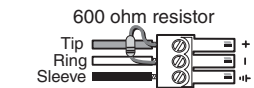
**NOTE** Do not tin the connector leads before installing them in the connector. Tinned wires are not as secure in the connectors and could be pulled out. For further wiring details, see the included "Cable Preparation For Audio Connections" card.



**Unbalanced Input (high impedance)**



**Balanced Input (high impedance)**



**Balanced Input (600 ohms)**

- ⑥ **Balanced output connector (MIX OUT)** — The balanced mono output is wired to a 3-pole, 3.5 mm captive screw connector. Wire the connector as shown below for balanced or unbalanced output devices.

**NOTE** Do not tin the connector leads before installing them in the connector. Tinned wires are not as secure in the connectors and could be pulled out. For further wiring details, see the included "Cable Preparation For Audio Connections" card.



### CAUTION

For unbalanced audio, connect the sleeve(s) to the ground. **DO NOT** connect the sleeve to the negative (-) contact.



**Balanced Output**



**Unbalanced Output (high impedance)**



Front Panel Features

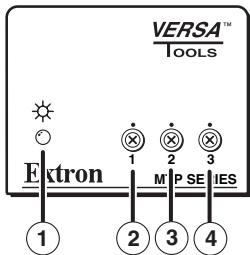


Figure 4 — MIX 301 front panel

- ① **Power LED** — Lights green to indicate that the MIX 301 has power.
- ② ③ ④ **Input channel audio gain controls** — Adjusts the audio input gain for each input. The gain is adjusted by rotating the screw and the adjustment range is from mute (fully counterclockwise) to +20 dB (fully clockwise). See the note below.

**NOTE** Unity gain (0 dB) for each input channel is around the 12 o'clock (vertical) position with the potentiometer adjustment screws vertically aligned with the indicator dots, as shown here:



The potentiometers of the MIX 301 are set precisely to unity gain at the factory. Once an adjustment screw is turned, test equipment will be required to accurately reset the potentiometer to unity gain.

Reference Information

Specifications

Audio

Gain .....	Adjustable per input. When all three gain potentiometers are set to 12 o'clock, the gain is as follows: Unbalanced output: -6 dB Balanced output: 0 dB
Frequency response .....	20 Hz to 20 kHz, ±0.05 dB
THD + Noise .....	0.05% @ 1 kHz at nominal level
S/N .....	>90 dB, balanced, at maximum output (unweighted)
CMRR .....	>70 dB @ 60 Hz to 20 kHz

Audio input

Number/signal type .....	3 mono, balanced/unbalanced
Connectors .....	(3) 3.5 mm captive screw connectors, 3 pole
Impedance .....	>10k ohms unbalanced, DC coupled
Nominal level .....	-10 dBV (316 mVrms) or +4 dBu (1.23 Vrms)
Maximum level .....	>+18 dBV, (balanced or unbalanced) at 1% THD+N
Input gain adjustment .....	Mute to +20 dB, adjustable per input

**NOTE** 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

Audio output

Number/signal type .....	1 mono, balanced/unbalanced
Connectors .....	(1) 3.5 mm captive screw connector, 3 pole
Impedance .....	50 ohms unbalanced, 100 ohms balanced
Nominal level .....	-10 dBV (316 mVrms) unbalanced, or +4 dBu (1.23 Vrms) balanced, adjustable
Maximum level .....	+25 dBu, balanced with 100k ohm load at 1% THD+N +18 dBm balanced with 600 ohm load at 1% THD+N

General

External power supply .....	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, 1 A, regulated
Power input requirements .....	12 VDC, 0.2 A (max.)

Reference Information, cont'd

Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount .....	Yes, with optional 1U rack shelf, part #60-190-01 or 60-604-01; or VersaTools® rack shelf, part #60-190-20 or 60-604-20; or the Back of the Rack Mounting Kit #70-367-01. Also furniture mountable with Under- desk Mounting Kit, part #70-212-01, or attachable to a projector mount with optional mounting kit #70-217-01.
Enclosure type .....	Metal
Enclosure dimensions .....	1.7" H x 2.2" W x 3.0" D (1U high, one- eighth rack wide) 4.3 cm H x 5.6 cm W x 7.6 cm D (Depth excludes connectors.)
Product weight .....	0.2 lbs (0.1 kg)
Shipping weight .....	2 lbs (2 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Listings .....	UL, CUL
Compliances .....	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF .....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE** All nominal levels are at ±10%.

**NOTE** Specifications are subject to change without notice.

Parts List

Included parts

Included parts	Part number to reorder
MIX 301	60-737-01
Power supply: universal 12 VDC, 1.0 A	70-055-01
3.5 mm captive screw connectors, 3-pole (x4)	10-319-13
3.5 mm captive screw connector, 2-pole	
Tweezer (small screwdriver)	
Rubber feet (unattached)	
User's manual	

Optional Accessories

Accessories	Part numbers
VersaTools back of the rack mounting kit	70-367-01
1U 19" VersaTools rack shelf kit	60-190-20
Basic VersaTools rack shelf	60-604-20
1U 19" rack shelf kit	60-190-01
1U basic rack shelf kit	60-604-01
Under desk mounting kit	70-212-01
Projector mounting kit	70-217-01